February 24, 1995

Mr. Fred Melillo
MDSSC - Huntington Beach
5301 Bolsa Aveune
Huntington Beach, CA 92647

Dear Fred,

ETICAM is located at 2095 Newlands Drive East, Fernley, Nevada. On March 25, 1985 ETICAM (EPA ID# NVD980895338) submitted a Part A and Part B Permit Application to the Nevada Division of Environmental Protection (NDEP) and the EPA. ETICAM received a RCRA hazardous waste facility permit, number NEVHW001, issued by NDEP, for treatment and storage of metallic wastes for metal recovery on December 24, 1986. ETICAM's treatment and reclamation process produces metal bearing concentrates and other products that are recycled to metallurgical industry. Metals that are reclaimed include cadmium, calcium, chromium, cobalt, copper, gold, iron, lead, nickel, silver, tin and zinc.

ETICAM is a hazardous waste storage and treatment facility operating in the following functions:

- Acceptance of hazardous and non-hazardous industrial waste from various generating industries.
- Acceptance of metal containing wastes for reclamation.
- Treatment of aqueous liquids, slurries, and solids from industrial waste in tanks, filters, and other recovery equipment within the facility.

Many types of hazardous wastes are accepted and treated at ETICAM in which the material can be identified as a listed waste as define in 40 CFR 261 Subpart D. Through ETICAM's treatment processes the material is reclaimed but must be reclaimed further before the intended recovery is completed. The resulting material from ETICAM's process is a concentrate which is commodity-like, however, not a commercial product even though there is a demand and need for ETICAM's material.

ETICAM

The product primarily consists of metal hydroxides and metal sulfides that are used as ingredients in the feedstock at various pyrometallurgical facilities. The product is properly packaged in DOT approved containers and labeled before it is transferred to a storage area. All product containers are then place on pallets, properly stacked, and spaced accordingly. The physical movement of the containers is accomplished by using forklifts. An up-to-date material inventory is maintained that identifies the product that is stored on site. Included with the inventory is a chemical analysis of the product. Material management practices include staging the product according to specifications for the shipment off site, thereby minimizing the time that the product is on site. The loading of the containers of product onto trucks for shipment off site takes place at the loading dock area and other staging areas.

(1) The metal bearing materials are in various chemical compositions such as hydroxides, sulfides, carbonates, metallic flake, phosphates, and oxides usually in the form of filtercakes. These materials are destined for recycling, rather than having these materials sent for disposal, typically at a permitted landfill. ETICAM agrees with the Federal Register (Volume 58, No. 176, Tuesday September 14, 1993) that environmentally sound recycling is favored as the best treatment for any waste, whenever feasible.

ETICAM accepts metal bearing liquid streams which are in the form of acids, bases and/or cyanide solutions. The solutions are treated in waste management units for the detoxification of their hazardous constituents along with precipitation of their metal content during ETICAM's hydrometallurgical process. Once the metal precipitation occurs, a liquid/solid phase separation is performed to isolate the metal bearing solid so that proper handling of the material can commence. A plate filter press is used to collect the solid phase and this solid phase is then sent through a dryer for further waste minimization of the material.

The materials at ETICAM which contain recyclable constituents are very similar to ores, ingredients and a variety of feedstocks in which these constituents are extracted, refined or re-utilized at numerous types of pyrometallurgical process facilities. Currently, ETICAM's recyclable material is acceptable to eight pyrometallurgical facilities. Each facility has their own metallurgical specifications for the ingredients that are necessary in their feedstock for the production process for

recovering the metal(s). For each facility that ETICAM has an agreement with, there are material (physical and chemical) specifications for the acceptance and processing of such material. The material shipped by ETICAM, satisfies the predetermined specifications for the processing and recycling of our material. The metal bearing materials that ETICAM produces and generates contain distinct metal concentrations as a result of our proprietary hydrometallurgical process, source reduction, waste minimization and blending techniques.

At this point, we feel that ETICAM's metal bearing material is similar to ores, fluxes and minerals that are considered commodities.

Most ores in the earth are not mined in a suitable form for metallurgical extraction processes, and they often do not contain a very high proportion of value minerals. Mineral dressing is always necessary for the ore so that a concentrate can be achieved, thereby allowing methods of extraction to be applied. Mineral dressing may be defined as *processing short of chemical alteration of the minerals.* ETICAM generates and produces its own "concentrate" thereby clearly achieving two of the primary goals of RCRA. The two goals in reference are 1) to conserve energy and natural resources and 2) to ensure that wastes are managed in an environmentally sound manner.

Smelting is the most familiar type of pyrometallurgy which consists of elevated temperatures and covering a wide range of metals for their production. There are different types of smelting which include using reducing agents such as carbon, refining by preferential oxidation (fire refining), matte smelting and finally in the utilization of conversion in the extraction of copper and nickel from sulfides. Slag chemistry is an extremely critical part in the smelting of metals. The slag chemistry must function at a low enough temperature for the following reasons; 1) assisting the process to work economically due to energy requirements for heat input, 2) minimize wear upon the refractory of the equipment and 3) reduce safety hazards associated within the industry. To enhance the stated objectives for the slag chemistry, materials are blended into the furnace such that the slag is *fluxed.* Fluxes such as lime, feldspars, quartz or iron oxide may be added solely to lower the liquidus temperature and viscosity of the slags. Slags having the correct composition and structure to dissolve impurities and gangue minerals at low activity, thereby allowing desired slag/metal reactions to occur in the smelting process.

In pyrometallurgy, oxides are a convenient starting point for the extraction process, however metal compounds often occur as sulfides, hydrates, and carbonates. These compounds are not always suitable for direct smelting for example, metal sulfides cannot be reduced by carbon or hydrogen. Therefore, ores and concentrates are often altered chemically by a *thermal pretreatment*. Ore drying is the simplest treatment in which the physically bonded water is released from the material (100 degree Celsius). Calcining, another type of thermal pretreatment, is defined as heating a material to produce chemical decomposition. Calcining occurs in the temperature range of 400 - 1250 degree Celsius thereby releasing hydrated water and other unwanted anions.

To address the potential for recycling our material, ETICAM formulated a campaign strategy with two distinct objectives:

1. The continuation for the development of recycling outlets that will have greater production capacity and unique metallurgical technology for the utilization of our material as effective substitute for ore.

2. Develop process chemistry at ETICAM to produce a material that will satisfy pyrometallurgical facilities feed specifications.

For example, ETICAM has developed a hydrometallurgical process that will remove phosphorus from Chromic acid streams. This unique process can be time consuming; however, the process can be applicable in certain situations. The physical metallurgy involved with Chromium makes Phosphorus an unacceptable impurity in the final metal product. High temperature metallurgy has very little effect and ability upon the removal of the Phosphorus associated with the Chromium concentrates.

(3) The quantity of material that is on site currently is approximately tons. The amount of material that is expected to be generated is tons per quarter.

(4) Contractual agreements have been arranged with the smelters for the acceptance of our material to be used in their pyrometallurgical process. The end market for the elements that ETICAM is recycling have substantial demand as indicated by the domestic consumption in 1992 listed in Table I.

TABLE I

	(metric tons)
Cadmium	3,400
Calcium (lime)	18,130,000
Chromium	435,000
Copper	2,300,000
Cobalt	7,200
Gold	100
Iron	154,300,000
Lead	1,220,000
Nickel	145,000
Silver	3,900
Tin	45,000,000
Zinc	1,225,000

Data complied by U. S. Department of the Interior, Bureau of Mines, Mineral Commodity Summaries 1993.

(5) The following criteria for the handling of the product will ensure the minimization of any loss of material.

The material is packaged in approved DOT containers for shipment off site for recycling. All containers are labeled, marked, sampled, and chemically analyzed so that the material is handled to minimize any loss. The chemical analytical report generated by the laboratory is correlated with the labeled container for the tracking of ETICAM's product. All containers are inspected on the facility inspection log in respect to 40 CFR 264.174.

The inspector will note the following conditions: stacking of containers, proper labeling, spills, residues associated with containers, aisle ways, housekeeping, container leaks, and overall container condition. The inspection paperwork will indicate a description of the problem, if any, the remedy of that particular problem, and the date that the problem was corrected.

Best Management Practices (BMP) are methods, procedures, physical structures and guidelines that are used at ETICAM to reduce the pollutants in storm water discharges associated with industrial activity at the facility. The management practices listed will protect the overall quality of the environment. Relevant elements of the BMP's are built upon the environmental management plan that is indicated in 40 CFR 264 and are documented in ETICAM's Part B Permit.

The following Best Management Practices are used to handle the material:

Good Housekeeping

Ground surfaces are maintained dry and clean by using brooms, shovels, and vacuum cleaners. The grounds are regularly picked up for refuse which is properly disposed of. All spill clean up procedures are understood by employees. Proper storage techniques include aisle space, storing containers away from direct traffic routes, stacking containers according to manufacturers' instructions and placing containers on pallets or similar devices to inhibit the corrosion of the containers which can result when the containers contact moisture on the ground. Discussions of the importance of good housekeeping are incorporate into ETICAM's safety meetings.

Material Handling Practices

All containers will be neatly organized and handled in a manner to minimize the potential of an accident or spill of material. All material will be identified to maximize employee awareness of safety and regulatory procedures.

Personnel Training

ETICAM's training program is detailed in the Part B Permit (#NEVHW001) in section 10 of that permit in accordance to 40 CFR 264.16. The following is the purpose, scope, subjects of training and the training records procedures. Training, in accordance with this section, is necessary to ensure that facility personnel are instructed to perform their duties in a way that ensures proper and safe operation in compliance with applicable State and Federal hazardous is designed to ensure that facility personnel are able to respond effectively to emergencies. In addition, the training program, as written is intended to provide all personnel with sufficient on the job training and classroom instruction so that the facility properly conducts and documents proper management of hazardous waste.

Spill Prevention and Response

This section is intended to describe the actions facility personnel must take to minimize hazards to human health or the environment in the event of spills, fires, explosions, or any unplanned sudden, accidental release of product, hazardous materials or wastes. If an event occurs the facility's Emergency Coordinator will be notified immediately.

The following spill control equipment is or will be available on-site in the receiving bays:

- 20 empty open-head drums.
- 5 shovels.
- 40 - 50 lb. bags of industrial absorbent.
- Emergency generator.
- Sump (pit) pumps.

A stock of protective equipment is be maintained at the facility for use by personnel during an emergency and will be stored on site:

1. Protective Masks
2. Cartridges for Masks
3. Canisters for Full Face Masks
4. Self-contained breathing apparatus
5. Disposal TYVEK suits equipped with hoods, boots, and lightweight gloves
6. Pairs of heavy-duty gloves and boots
7. Hard Hats
8. Full protective Fire Department Turnouts with coats, pants and helmets w/visor
9. Acid Resistant Suits

A) Decontamination Equipment

1. There are two standard emergency eyewash showers located within the truck receiving bays. These showers will be used to decontaminate the emergency equipment. If necessary, water and mild soap solution will be mixed up within a bucket for removal of any additional contamination.

2. The eyewash/showers are standard emergency showers capable of at least 40 gallons/minute flow for as long as necessary.

3. The water pressure outside the facility in the public system is approximately 90 psi and this pressure is available directly into the fire sprinkler system. The water supplying the emergency showers must flow through the water meter, and the expected residual pressure at the showers is at least 50 psi at the most distant emergency shower from the water meter.

4. The available water pressure, as listed above, is:

   Pressure: 90 psi (@ main)

   Volume: 60,000 gal. (Community System, without make-up).

Aisle Space

Aisle space is maintained to allow the unobstructed movement of personnel, fire protection equipment, and spill control equipment.

Management of Containers

All containers must be in good condition. If there is evidence of severe rust, apparent structural defects or leaks the material in the container must be transferred to a container that is in good condition. The material of construction for all containers must not react with the material that is to be stored in them. Containers must always be closed during movement of the container. All containers must be handled in a manner so that the container does not rupture the container or cause it to leak.

Security

The facility's perimeter is completely surrounded by fence that is in excellent condition. The gate entrance to the west truck bay is closed at all times except for the entering and exiting of trucks. The gate to the main parking lot is only open during normal business hours. This barrier prevents the unknowing entry, and minimizes the possibility for unauthorized entry, of persons or livestock onto the active portion of the facility. The fence perimeter is inspected once a week.

Packaging

The packaging of all materials for storage and/or shipment are in DOT approved containers. Containers are properly labeled and marked.

Marking

All containers will be label with durable and legible markings. All labeling must be clearly visible and may not be obscured by markings or attachments.

Recordkeeping

ETICAM documents the following:

a. The date of each shipment and the facility it was sent to.

b. A letter from the receiving facility that the material is used in their process as an ore or other product.

c. The receiving facility or ETICAM have the necessary equipment to do the reclamation.

d. The recycler will provide letters that certain quantities of material were received, the material was recycled, and the amount of recovered metal.

The recordkeeping for the product is kept on site for a minimum of three years and is available at all reasonable times for inspection, by any officer, employee, or representative of the NDEP who is duly designated by the Regional Administrator. The stated criteria for the handling of the product will ensure the minimization of any loss of material.

ETICAM keeps a written operating record that includes inventory information for the product, hazardous waste, and chemical reagents located on site. This operating record is updated continuously.

Material Requirement Planning

All materials on site will utilize a material requirement system such that all quantities of material on site will be kept to a minimum. By keeping chemical reagent inventory to a minimum, storage of this material may be kept inside the facility thereby minimizing the handling of the chemicals. Optimizing shipment schedules to other facilities will reduce the time that material is on site.

Loading and Unloading Materials

Vehicle positioning is the practice of locating trucks while transferring of materials to prevent spills of materials onto the ground surface. The loading dock area is generally the area in which this activity of loading and unloading of material takes place. The transfer of bags, drums, boxes or other containers are handled by a forklift. Vehicles and equipment are regularly check for leaks and fixed promptly if needed. All vehicles are spotted by operators and wheel blocks are used during the transfer activity.

In the selection upon mechanical handling equipment this decision depends upon the ability of the equipment to:

Improve safety.
Reduce handling costs.
Reduce inventory requirements.
Shorten work cycles.
Expedite shipments or deliveries.
Simplify flow and increase operating efficiency.
Reduce damage and mechanical down time.
Improve space utilization.

(6) The Chromium Hydroxide produced and generated at ETICAM is exclusively (or nearly exclusively) trivalent chromium. The Chromium Hydroxide, which is virtually non- hazardous in the trivalent species, will be packaged and shipped accordingly.

If you have any comments and/or questions, please give myself a call.

Sincerely,

Mickey Lawler

Mickey Lawler
Technical Sales Manager

cc:ETICAM file